

116TH CONGRESS  
1ST SESSION

# S. 2702

To require the Secretary of Energy to establish an integrated energy systems research, development, and demonstration program, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

OCTOBER 24, 2019

Mr. RISCH (for himself and Mr. MANCHIN) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To require the Secretary of Energy to establish an integrated energy systems research, development, and demonstration program, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-  
2 tives of the United States of America in Congress assembled,*

**3 SECTION 1. SHORT TITLE.**

4       This Act may be cited as the “Integrated Energy Sys-  
5 tems Act of 2019”.

**6 SEC. 2. INTEGRATED ENERGY SYSTEMS PROGRAM.**

7       (a) DEFINITIONS.—In this section:

1                             (1) PROGRAM.—The term “program” means  
2                             the Integrated Energy Systems Program established  
3                             under subsection (b)(1).

4                             (2) SECRETARY.—The term “Secretary” means  
5                             the Secretary of Energy.

6                             (b) ESTABLISHMENT.—

7                             (1) IN GENERAL.—The Secretary shall establish  
8                             a program within the Office of Nuclear Energy, to  
9                             be known as the “Integrated Energy Systems Pro-  
10                             gram”—

11                             (A) to maximize energy production and ef-  
12                             ficiency;

13                             (B) to provide reliable, competitive, and  
14                             environmentally sustainable electricity to the  
15                             grid;

16                             (C) to expand the use of emissions-reduc-  
17                             ing energy technologies into nonelectric sectors  
18                             to achieve dramatic reductions in environmental  
19                             emissions; and

20                             (D) to enable the energy infrastructure of  
21                             the United States to support the quantity, vari-  
22                             ability in type, and variability in size of genera-  
23                             tion devices and smart load devices.

(2) PROGRAM ADMINISTRATION; PARTNERS.—

2 The program shall be carried out by the Office of  
3 Nuclear Energy, in partnership with—

(i) the Office of Energy Efficiency  
and Renewable Energy;

8 (ii) the Office of Fossil Energy;

(iii) the Office of Electricity; and

10 (iv) the Office of Cybersecurity, En-  
11 ergy Security, and Emergency Response;

## 12 (B) National Laboratories;

13 (C) institutions of higher education; and

14 (D) the private sector.

(A) expanding emissions-reducing energy technologies to the transportation and industrial sectors by leveraging—

(i) the nuclear reactor fleet of the  
United States;

23 (ii) advanced nuclear;  
24 (iii) renewable energy

(iv) carbon capture, use, and storage;

2 and

3 (v) the energy storage resources of the  
4 United States;

(B) ensuring the competitiveness of the United States in best value, emissions-reducing energy development;

(C) modernizing energy infrastructure with emissions-reducing technology to promote—

(i) grid stability;

(ii) ramping load following;

12 (iii) rapid start;

(iv) intermittency; and

14 (v) resiliency;

15 (D) establishing a domestic supply chain

16 of—

(ii) advanced coolants;

(E) enhancing and accelerating domestic manufacturing and desalinization technologies and processes by optimally using clean energy sources; and

24 (F) mitigating vulnerability to—

6 (c) RESEARCH GOALS.—Research goals under the  
7 program shall include—

(1) technology innovation to further the expansion of emissions-reducing energy technologies to accommodate a modern, resilient grid system by—

11 (A) effectively leveraging multiple energy  
12 sources;

13 (B) enhancing and streamlining engineer-  
14 ing design;

(C) carrying out process demonstrations to optimize performance;

17 (D) addressing safety by design; and  
18 (E) streamlining regulatory review;

(2) the most efficient use of emissions-reducing energy technologies for hydrogen production to support transportation and industrial needs;

22 (3) water processing and purification to support  
23 industrial and municipal potable and cooling water  
24 needs;

- 1                         (4) conversion of carbon feedstock (such as  
2                         coal, biomass, natural gas, and refuse waste) to  
3                         higher value nonelectric commodities;
- 4                         (5) the use of carbon dioxide in nonelectric  
5                         commodities;
- 6                         (6) advanced power cycles, extraction, and proc-  
7                         essing of complex hydrocarbons to produce high-  
8                         value chemicals;
- 9                         (7) more effective thermal energy use, trans-  
10                         port, and storage;
- 11                         (8) the demonstration of nuclear energy deliv-  
12                         ery for—
- 13                         (A) the production of chemicals, metals,  
14                         and fuels;
- 15                         (B) the capture, use, and storage of car-  
16                         bon; and
- 17                         (C) renewable integration with an inte-  
18                         grated energy system; and
- 19                         (9) the development of new analysis capabilities  
20                         to identify the best ways—
- 21                         (A) to leverage multiple energy sources in  
22                         a given region; and
- 23                         (B) to quantify the benefits of integrated  
24                         energy systems.

1       (d) GRANTS.—The Secretary may award grants  
2 under the program to support the goals of the program.

3       (e) AUTHORIZATION OF APPROPRIATIONS.—There is  
4 authorized to be appropriated to the Secretary to carry  
5 out the program \$50,000,000 for each of fiscal years 2020  
6 through 2029.

